इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 15169 (2002): Needles for Sewing Machines for Industrial Purpose [MED 29: Sewing Machines]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

भारतीय मानक

औद्योगिक उपयोग की सिलाई मशीनो के लिए सुइयॉ — विशिष्टि

Indian Standard

NEEDLES FOR SEWING MACHINES FOR INDUSTRIAL PURPOSE — SPECIFICATION

ICS 61.080

© BIS 2002

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 2002

Price Group 5

Sewing Machines Sectional Committee ME 29

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards after the draft finalized by the Sewing Machines Sectional Committee had been approved by the Mechanical Engineering Division Council

This standard is one of the series of standards prepared to rationalize the sizes of components of industrial sewing machine for manufacturing in economic quantities The quality of stitch depends on the quality of needle This standard specifies the various requirements of needle for sewing machine for industrial purposes along with the internationally accepted dimensions of needles for proper fitting including functional requirements of needles

In the preparation of this standard assistance has been derived from the following standard issued by the Japanese Industrial Standard Committee (JISC) Japan

JIS B 9076 1987 Needles for industrial sewing machines

The composition of the Committee responsible for the formulation of this standard is given in Annex A

For the purpose of deciding whether a particular requirement of this standard is complied with the final value observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2 1960 Rules of rounding off numerical values (*revised*) The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard

AMENDMENT NO 1 JULY 2008
TO
IS 15169 2002 NEEDLES FOR SEWING MACHINES FOR INDUSTRIAL PURPOSES — SPECIFICATION

(*Page* 1 *clause* **5** *informal table*) — Substitute 0 10 *Max for* 0 10 against Nickel (Ni)

(*Page* 3 *clause* 7) — Substitute diameter of the shank of the needle *for* surface of needle

(*Page* 3 *clause* **8 5**) — Substitute the following for the existing clause

CAE (Clearance Above Eye) diameter of the needle shall be as given in Table 5 Tolerance on CAE diameter shall be + 0 04 mm

(*Page* 3 *clause* **9 1 1** *seventh line*) — Substitute After releasing the load *for* While maintaining this position

(*Page* 7 *Table* 5 *Title*) — Delete **Dimensions of'** from the title

(ME 29)

Reprography Unit BIS New Delhi India

Indian Standard

NEEDLES FOR SEWING MACHINES FOR INDUSTRIAL PURPOSE — SPECIFICATION

1 SCOPE

This standard covers the requirements of sewing machine needles for industrial purposes

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text constitute provisions of this standard At the time of publication the editions indicated were valid All standards are subjected to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below

IS No	*Title*
1720 1978	Cotton sewing threads Specification (*second revision*)
1986 1981	Code of practice for hard chromium plating on iron and steel for general engineering purposes (*first revision*)
2500	Sampling inspection procedures
(Part 1) 2000	Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for lot by lot inspection (*first revision*)

3 CLASSIFICATION

The needles are divided into four classes according to the types of sewing machines for which these needles are used and the size of the needle shank and further each class is sub divided into numbers according to the diameter of the blade of the needle referred to as needle number as shown in the Table 1

4 NOMENCLATURE

For the purpose of this standard the nomenclature of the various parts of the needle shall be as given in Fig 1 and Fig 2

5 MATERIAL

The needles shall be manufactured from steel needles wire having the following typical composition subject to achieving the specified hardness

Elements	*Percentage*
Carbon (C)	0 95 1 02
Silicon (Si)	0 15 0 25
Manganese (Mn)	0 20 0 50
Phosphorous (P)	0 025 *Max*
Sulphur (S)	0 025 *Max*
Chromium (Cr)	0 20 0 30
Nickel (Ni)	0 10
Vanadium (V)	0 05 0 10

6 HARDNESS

The hardness of the needle shall be measured at the tip of the needle and shall not be less than 750 HV

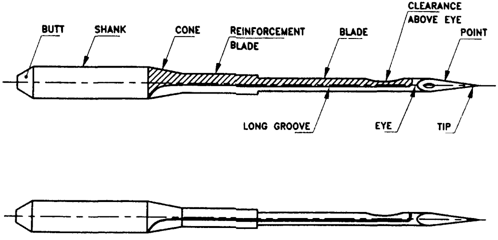


Fig 1 DA × 1 DB × 1 DP × 5

Table 1 Classification of Needles

(Clause 3)

Class of Needles	Types of Sewing Machines	Needle Number																			
DA 1	Lock Stitch	General Size	7	8	9	10	11	2	13	4	15	16	17	18	19	20	21				
		Metric Size	55	60	65	70	75	80	85	90	95	100	105	110	120	125	130				
DB 1	Lock Stitch	General Size	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
DP 5		Metric Size	55	60	65	70	75	80	85	90	95	100	105	110	120	125	130	140	160	180	200
DC 1	Over Stitch	General Size	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
		Metric Size	55	60	65	70	75	80	85	90	95	100	105	110	120	125	130				

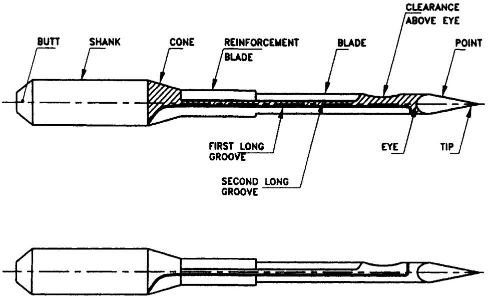


FIG 2 DC × 1

7 SURFACE TREATMENT

The needles shall be chrome plated as per IS 1986 having plating thickness 3 to 5 microns on the surface of needle

8 DIMENSIONS

8 1 Dimensions and tolerances of DA × 1 needle shall be as given in Table 2

8 2 Dimensions and tolerances of needles DB × 1 and DP × 5 shall be as given in Table 3

8 3 Dimensions and tolerances of needle DC × 1 shall be as given in Table 4

8 4 The needle may have negligible amount of bend but it shall not exceed 0 10 mm from the tip to the centre axis of the needle

8 5 In case the Clearance Above Eye (CAE) diameter in the neighbourhood of the needle hole is less than the CAE diameter (*B*1) and (*B*2) at the centre of the long groove the allowable reduction of the diameter is approximately 5 percent of the CAE diameter and in case the CAE diameter (*U*) at the centre of recess is less than the CAE diameter (*B*1) and (*B*2) at the centre of the long groove then dimensions (*U*) shall be as given in Table 5

9 BENDING DISTORTION

9 1 The needle conforming to this standard shall withstand satisfactorily the test given in **9 1 1**

9 1 1 The needle shall be held on the entire length of its shank in a suitable clamp with the Clearance Above Eye (CAE) side facing the load point A gradual load of 0 1 N shall be applied at the centre point of the eye perpendicularly with preset angle of 5 to 7 degrees and long groove of the needle shall be in compression While maintaining this position measure the bending distortion through a 50× magnification device This test shall be carried out 5 times and the result shall be within the values specified in Table 6

10 WORKMANSHIP AND FINISH

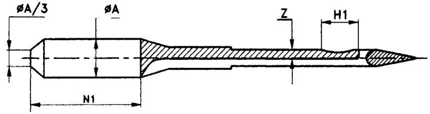
10 1 The inside surface of the needle eye shall be well rounded The inside surface of the needle eye and the point groove shall be smooth and free from burrs and cuts The long groove shall also be smooth

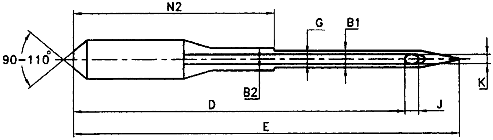
10 2 The point of the needle shall be symmetrical to the centre line of the needle and shall be sharp and well rounded so that it punches the cloth smoothly without tearing

Table 2 Dimensions and Tolerances of Needle DA × 1

(*Clause* 8 1)

All dimensions in millimetres





Dimensions	*B1*	*B2*	*A*	*D*	*E*	*J*	*K*	*G*	*H1*	*N1*	*N2*	*Z*
Tolerances	0 02	+ 0 02	0 01	± 0 01	± 0 2	+ 0 03	+ 0 03	+ 0 02	± 0 1	0 2	+ 1 0 0 3	± 0 2
Size of the Needle												
7	0 57	0 65	1 63	29 6	33 3	0 60	0 23	0 26	3 1	13 5	20 5	0 31
8	0 62	0 70				0 65	0 25	0 28				0 34
9	0 67	0 75				0 70	0 26	0 30	3 6			0 37
10	0 72	0 80				0 75	0 28	0 32				0 40
11	0 77	0 85				0 80	0 30	0 34	3 8			0 42
12	0 82	0 92				0 85	0 32	0 36				0 45
13	0 87	0 97				0 90	0 34	0 38	4 0			0 48
14	0 92	1 02				0 95	0 36	0 40				0 50
15	0 97	1 07				1 00	0 38	0 42	4 2			0 53
16	1 02	1 12				1 05	0 40	0 44				0 56
17	1 07	1 17				1 10	0 42	0 46	4 4			0 58
18	1 12	1 22				1 15	0 44	0 48				0 62
19	1 22	1 32				1 20	0 46	0 50	4 6			0 64
20	1 27	1 37				1 25	0 48	0 53				0 68
21	1 32	1 42				1 35	0 52	0 56	4 8			0 73

NOTES

1 *B* s shall be measured at the centre of the long groove

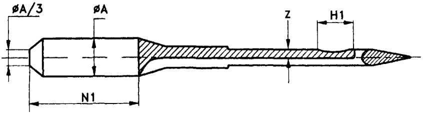
2 *K* shall be measured at the centre of the hole

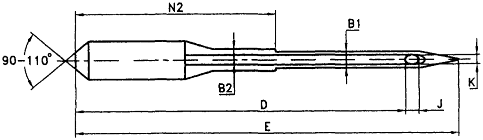
3 Shape of the needle point may be as shown above additionally round and ball point, leather pointed end and rounded end may be used

Table 3 Dimensions and Tolerances of Needles DB × 1 DP × 5

(*Clause* 8 2)

All dimensions in millimetres





Dimension	*B1*	*B2*	*A* DB	*A* DP 5	*D*	*E*	*J*	*K*	*G*	*H1*	*N1*	*N2*	*Z*
Tolerances	02	0 02	0 0	0 0	± 0 0	± 0 2	0 03	0 03	0 2	0	0 2	0 0	0 2
Size of the Needle													
	0 5	0 65	63	2 00	33 9	37 2	0 60	0 24	0 26	0	6 0		
8	0 62	0 0				37 3	0 65	0 25	0 28				0 4
9	0 67	0 5				37 4	0 0	0 26	0 30				0
0	0 2	0 80				37 5	0 5	0 28	0				0
		0 85				37 6	0 80	0 30	0 4				0 4
	0 82	0 92				37	0 85	0 2	0				0 4
	0 8	0 9				37 8	0 90	0 34	0 38				0 48
4	0 2	02				37 9	0 95	0 36	0 40				0 50
	0 9	0				38 0	00	0 38	0 42	5			0 5
	02	2				38	05	0 40	0 44				6
	0					38 2	0	0 42	0 4				0 8
8	2	22				38 3	5	0 44	0 48				0 62
	22	2	0			38 5	20	0 46	0 0		2 5		0 64
		3	2 02			38 6	25	48	6		5		0 68
	2	42				38 8	35	0 52					0

N

1 p d n on nd o e of P a a)B e p h ha k d n e e 4 w h 2 m o a

2 *B* ha b n a u ed a he cn e of h ong g oo e

3 *K* b ea u ed a he en e of he ho e

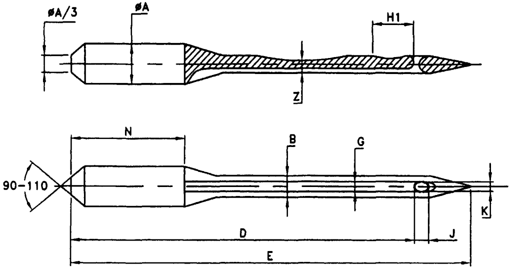
4 S p need e po ay be a hown n he abo e u a o and add o y ound ba p nd e po n nd b

5 d ne n w hou pu a on of he o e an e ha be a o m nd d

Table 4 Dimensions and Tolerances of Needle DC × 1

(*Clause* 8 3)

All dimensions in millimetres



Dimensions	*B*	*A*	*D*	*E*	*J*	*K*	*G*	*H1*	*N*	*Z*
Tolerances	0 02	0 0	± 0 0	± 0 2	0 03	0 03	0 02	± 0	0 2	± 0 2
Size of the Needle										
	0 57	2 02	28 6	33 3	0 57	0 24	0 22	4 5	0 0	0 6
8	0 62				0 62	0 24	0 24			0 8
9	0 6				0 67	0 26	0 26			0 20
0	0 72				0 72	0 28	0 28			0 22
	0				0 77	0 30	0 30			0 23
	0 82				0 83	0 32	0 32			0 25
	0 8				0 88	0 34	0 34			0 26
4	0 92				0 95	0 36	0 36	5 0		0 28
5	0 97				00	0 38	0 38			0 29
6	02				05	0 40	0 40			0 3
	07				10	0 42	0 42			0 32
8	2				5	0 44	0 44			0 34
9	22				20	0 48	0 48			0 37
20	27				25	0 50	0 50			0 39
2	32				30	0 52	0 52			0 40
22	42				40	0 56	0 56			0 43

NOTES

1 *B* shall be measured at the centre of the long groove

2 *K* shall be measured at the centre of the hole

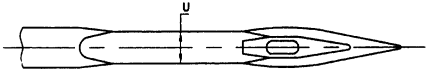
3 Shape of the needle point may be as shown in the above illustration and additionally round point and ball point

4 The dimensions without stipulation of the tolerance shall be as recommended

Table 5 Dimensions of CAE Diameter Near Needle Hole

(*Clause* 8 5)

All dimensions in millimetres

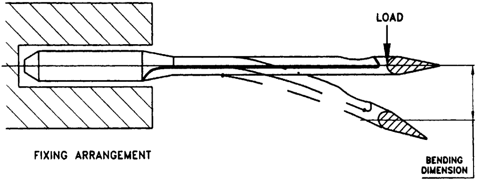


Number of Needle	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CAE Diameter (*U*)	0 53	0 58	0 63	0 68	0 73	0 76	0 81	0 86	0 91	0 96	1 01	1 06	1 11	1 17	1 30	1 37	1 57	1 77	1 97

Table 6 Values of Bending Distortion

(*Clause* 9 1 1)

All dimensions in millimetres



Class of Needle	Needle Size and Bending Distortion																			
	Sizes	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
DA × 1	Bending Distortion	0 10	0 10	0 10	0 15	0 15	0 20	0 25	0 25	0 25	0 30	0 30								
DB × 1 DP × 5		0 10	0 10	0 10	0 15	0 15	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20
DC × 1		0 10	0 10	0 10	0 15	0 15	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 20

11 INSPECTION AND TESTING

11 1 The needle shall be checked for material dimensions surface treatment bending distortion hardness workmanship and finish

11 2 The following tests shall also be conducted on the needle

11 2 1 *Test for Breaking Angle*

Breaking angle of the needle shall be 28 ± 10°

11 2 2 *Needle Eye Test*

The needle eye shape surface finish smoothness shall be tested by the number of cycles the cotton thread having cotton count 50s/3 3 ply (3 strands each single) as per IS 1720 passes through the eye The minimum number of cycles shall be 30 strokes at either end of the eye

12 SAMPLING

The sampling plan and criteria for conformity shall be as given in IS 2500 (Part 1) or as agreed to between the purchaser and the supplier

13 PRESERVATION AND PACKING

The needles shall be packed either in oiled paper with a thin foil after being treated with suitable preventive or in vapour phase inhibitor (commonly known as VPI paper) or vapour corrosive inhibitor otherwise in accordance with the best prevalent trade practice to prevent exposure to air The needles shall be packed in plastic boxes after preservation treatment or as agreed to between the purchaser and the supplier

14 MARKING

14 1 Each needle shall be marked with the following

a) Needle size and

b) Manufacturer s name or trade mark or logo

14 2 Each packet shall be marked with the following

a) Needle class and number

b) Quantity per packet

c) Batch No /Lot No and

d) Manufacturer s name trade mark or logo

14 3 BIS Certification Marking

The product may also be marked with the Standard Mark wherever it is not possible to mark the Standard Mark on the product then it shall be marked on the package containing the product

14 3 1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act* 1986 and Rules and Regulations made thereunder The details of conditions under which a licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Sewing Machine Sectional Committee, ME 29

Organization	*Representative(s)*
Bicycle & Sewing Machine (R&D) Centre Ludhiana	Shri B S Sangha (***Chairman***) Shri Harbans Singh (*Alternate*)
ALTEK Lammertz Needles Ltd Chennai	Shri S Ganesh Shri Rajesh Kannon (*Alternate*)
C R Auluck & Sons (Pvt) Ltd Ludhiana	Shri Sunil Auluck Shri S P Markanda (*Alternate*)
Gadia and Gadia Kolkata	Shri Devendra P Gadia Shri Shanker Chakraborty (*Alternate*)
Gemini Industrial Corporation Ludhiana	Shri B C Pandey Shri S K Bose (*Alternate*)
Mechanical Engineering Research & Development Organization Durgapur	Shri Hardyal Singh Shri Ujjagar Singh (*Alternate*)
Ministry of Defence (CQAE) New Delhi	Brig M S Parthasarth Lt Col M S Katti (*Alternate*)
Ministry of Industry Development Commissioner (SSI) New Delhi	Shri M K Bhatt
Narendera & Co Ludhiana	Shri Baldev Singh
Navrang Sewing Machine Industries Ludhiana	Shri Dinesh Kapila Shri Sudesh Kapila (*Alternate*)
Ordnance Clothing Factory Shahjahanpur	Shri K Parthiban
Pooja Sewing (Pvt) Ltd Pathankot	Shri Arvind Gupta Shri Satinder Kumar (*Alternate*)
Punjab Sewing Machine (Industries) Assoication Ludhiana	Shri Dalbir S Dhiman
Quality Marking Centre Ludhiana	Senior Technical Officer
Renew Engineering Work Ludhiana	Shri Sanjiv Jain
Rita Mechanical Works Ludhiana	Shri Ashok K Jain Shri Jagdish Chand (*Alternate*)
Sawrup Mechanical Works Ludhiana	Shri Nirpal Singh
Shiv Industries Bilaspur (H P)	Shri Kamal Jeet
Singer India Ltd Jammu	Shri B M Sharma Shri Ashish Gupta (*Alternate*)
Tilak Foundary Jaipur	Shri Tilak Raj Shri Vijay Kumar (*Alternate*)
Usha International Delhi	Shri Hirak Roy Shri P C Bhattachargee (*Alternate*)
Uttam Sewing Machine Jallandhur City	Shri Jagdeep Rai Shri Manohar Lal (*Alternate*)
BIS Directorate General	Shri M L Chopra Director & Head (MED) [Representing Director General (*Ex-officio*)]

Member Secretary
Shri Bir Raj Bans Singh
Joint Director (MED) BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act* 1986 to promote harmonious development of the activities of standardization marking and quality certification of goods and attending to connected matters in the country

Copyright

BIS has the copyright of all its publications No part of these publications may be reproduced in any form without the prior permission in writing of BIS This does not preclude the free use in the course of implementing the standard of necessary details such as symbols and sizes type or grade designations Enquiries relating to copyright be addressed to the Director (Publications) BIS

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments Standards are also reviewed periodically a standard along with amendments is reaffirmed when such review indicates that no changes are needed if the review indicates that changes are needed it is taken up for revision Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of BIS Catalogue and Standards Monthly Additions

This Indian Standard has been developed from Doc No MF 29 (0436)

Amendments Issued Since Publication

Amend No	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters

Manak Bhavan 9 Bahadur Shah Zafar Marg New Delhi 110 002
Telephones 323 01 31 323 33 75 323 94 02

Telegrams Manaksanstha
(Common to all offices)

Regional Offices		Telephone
Central	Manak Bhavan 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	323 76 17 323 38 41
Eastern	1 14 C I T Scheme VII M V I P Road Kankurgachi KOLKATA 700 054	337 84 99 337 85 61 337 86 26 337 91 20
Northern	SCO 335 336 Sector 34 A CHANDIGARH 160 022	60 38 43 60 20 25
Southern	C I T Campus IV Cross Road CHENNAI 600 113	254 12 16 254 14 42 254 25 19 254 13 15
Western	Manakalaya E9 MIDC Marol Andheri (East) MUMBAI 400 093	832 92 95 832 78 58 832 78 91 832 78 92

Branches AHMEDABAD BANGALORE BHOPAL BHUBANESHWAR COIMBATORE
FARIDABAD GHAZIABAD GUWAHATI HYDERABAD JAIPUR KANPUR
LUCKNOW NAGPUR NALAGARH PATNA PUNE RAJKOT THIRUVANANTHAPURAM

Printed at Prabhat Offset Press New Delhi 2